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NOTICE OF ALLOWANCE AND FEE(S) DUE

65565 7590 08/11/2008

SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER	
LEE, JAE W	
ART UNIT	PAPER NUMBER
1656	

DATE MAILED: 08/11/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,767	06/06/2005	Yuki Endo	Q88255	5081

TITLE OF INVENTION: PROTEIN WHICH BINDS TO AKT2

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1440	$300	$0	$1740	11/12/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,767	06/06/2005	Yuki Endo	Q88255	5081

TITLE OF INVENTION: PROTEIN WHICH BINDS TO AKT2

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1440	$300	$0	$1740	11/12/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, JAE W	1656	536-023100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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EXAMINER	
LEE, JAE W	
ART UNIT	PAPER NUMBER
1656	

DATE MAILED: 08/11/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 143 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 143 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/537,767	ENDO ET AL.	
	Examiner	Art Unit	
	JAE W. LEE	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *06/20/2008*.

2. ☒ The allowed claim(s) is/are *1-5*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on 07/31/2008, Susan Mack requested an extension of time for 2 MONTH(S) and authorized the Director to charge Deposit Account No. 19-4880 the required fee of $ 450 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this Examiner's amendment was given in a telephone interview with Susan Mack on 07/24/2008.

The claims have been amended as follows:

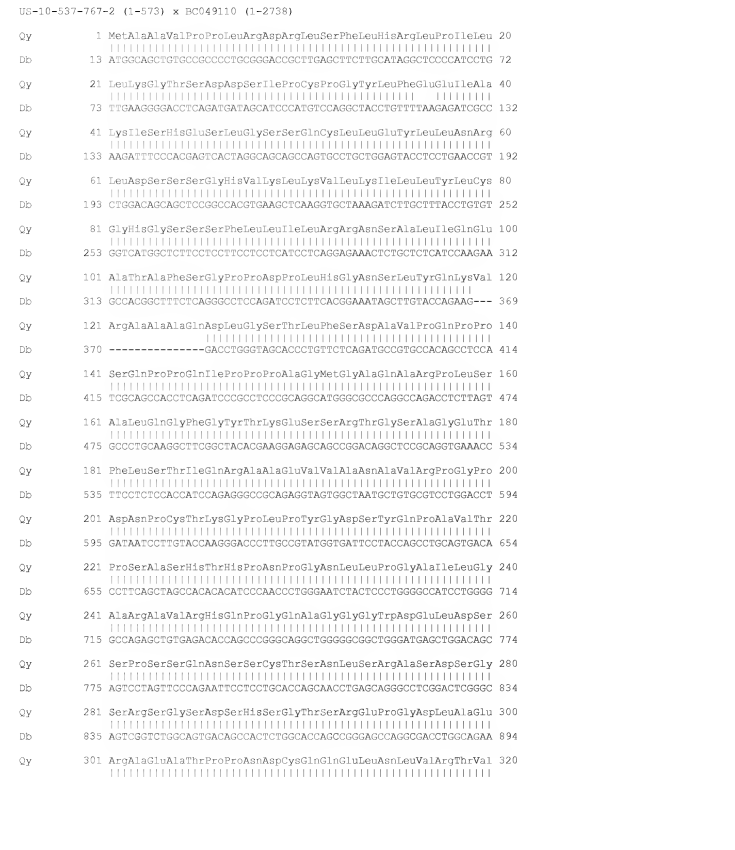
Claim 5, replace "A cell" with "An isolated cell".

The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or fairly suggest an isolated polynucleotide encoding a polypeptide which comprises the amino acid sequence of SEQ ID NO: 2 or

SEQ ID NO: 4, which binds to Akt-2, the polypeptide sequences of SEQ ID NO: 2 and 4, an expression vector comprising said polynucleotide sequence, and an isolated cell transformed with said expression vector. The utility of the claimed invention resides on the fact that Applicants have discovered that an increased expression of the polypeptides as set forth in SEQ ID NOs: 2 and 4, interferes with the insulin signaling cascade downstream of Akt-2 also known as Protein Kinase B beta (PKBβ) for the activation of GLUT4 (glucose transporter in muscle and adipose tissues) translocation from cytosol to cell membrane for increased sugar uptake. Thus, the claimed polypeptides, polynucleotides and cells have a potential use in the treatment of type 2 diabetes mellitus. The Examiner notes that closest prior art references are: [1] the polynucleotide as set forth in GenBank accession number BC049110 (publicly available on June of 2003), which encodes a protein that comprises SEQ ID NO: 2 except that it contains (a) substitutions at positions 37 and 457, and (b) a deletion from position 120 to position 125 (see the sequence alignment 1 below); [2] the polynucleotide as set forth in Genbank accession number AK128728 (publicly available on September of 2003), which encodes a protein that comprises SEQ ID NO: 4 except that it contains (a) a substitution at position 174 and (b) a deletion from position 1 to position 16 (see the sequence alignment 2 below); and [3] the polynucleotide as set forth in Genbank accession number AX714043 (publicly available on March of 2003), which encodes a protein that comprises all of SEQ ID NO: 4 except for a deletion from position 176 to position 243(splice variant of the polypeptide of SEQ ID NO: 4) (see the sequence alignment 3 below).

1. Sequence alignment for BC049110:



```
Db        895 AGGGCTGAGGCCACGCCCCCAAATGACTGCCAGCAAGAACTGAATCTAGTGAGGACTGTG 954

Qy        321 ThrGlnGlyProArgValPheLeuSerArgGluGluThrGlnHisPheIleLysGluCys 340

Db        955 ACACAGGGGCCACGTGTCTTCCTGAGCCGTGAGCACACGCAGCACTTCATCAAAGAGTCT 1014

Qy        341 GlyLeuLeuAsnCysGluAlaValLeuGluLeuLeuLeuArgGlnLeuValGlyThrSer 360

Db       1015 GGCCTGCTCAACTGTGAGGCAGTGCTGGAGCTGCTCCTGCGCCAGCTGGTCGGGACCAGT 1074

Qy        361 GluCysGluGlnMetArgAlaLeuCysAlaIleAlaSerPheGlySerAlaAspLeuLeu 380

Db       1075 GAGTGCGAGCAGATGAGGGCGCTGTGTCCCATCGCGTCCTTTGGGAGTGCTGACCTCCTG 1134

Qy        381 ProGlnGluHisValLeuLeuLeuCysArgGlnGlnLeuGlnGluLeuGlyAlaGlySer 400

Db       1135 CCTCAGGAGCACGTCCTCCTCCTGTGCCGACAGCAGCTGCAGGAACTTGGCGCGGGCAGC 1194

Qy        401 ProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPheGluAlaSerCysGly 420

Db       1195 CCTGGACCTGTGACCAACAAAGCCACCAAGATCCTGAGACATTTTGAAGCCTCCTGTGGA 1254

Qy        421 GlnGlnLeuProThrLeuArgLeuCysAlaGlnProAsnSerAlaAlaAlaProValGly 440

Db       1255 CAACAGCTCCCTACCCTAAGGCTCTGTGCCCAGCCCAACTCTGCAGCTGCCCCTGTGGGC 1314

Qy        441 ProAlaAspLeuLeuThrSerProValProAlaProGlySerGlnValCysLeuGlnPro 460

Db       1315 CCAGCTGACCTGCTGACCAGCCCCGTGCCTGCCCCTGGGAGCCAGGTCTTCCTCCAGCCT 1374

Qy        461 LeuSerSerAlaThrValValProArgSerProValLeuPheProSerProAsnThrLeu 480

Db       1375 CTCAGCTCCGCCACAGTGGTACCCAGGAGTCCTGTGCTCTTTCCATCCCCAATACCTTA 1434

Qy        481 ProProSerAlaLeuGluGluProSerGluValArgThrGlnLeuValCysSerSerGlu 500

Db       1435 CCTCCGTCTGCTCTGGAGGAGCCCAGCGAGGTCCGAACCCAATTGGTGTGTTCTAGTGAA 1494

Qy        501 GlnGlyThrGluSerGluGlnArgLeuGluAsnThrAspThrProGluAspSerSerSer 520

Db       1495 CAGGGGACAGAATCTGAGCAGAGGCTGGAGAACACAGACACCCCAGAGGATAGCTCCAGT 1554

Qy        521 ProLeuProTrpSerProAsnSerLeuPheAlaGlyMetGluLeuValAlaCysProArg 540

Db       1555 CCGCTCCCGTGGAGTCCCAACTCTTTGTTTGCTGGCATGGAGCTGGTGGCTTGCCCCCGC 1614

Qy        541 LeuProCysHisSerSerGlnAspLeuGlnThrAspLeuGlnLysValThrThrGluAla 560

Db       1615 CTGCCTTGCCACAGCTCGCAGGACCTCCAGACAGATTTACAGAAGGTGACCACAGAAGCT 1674

Qy        561 ProValSerGluProSerAlaPheAlaPheLeuAsnMet 573

Db       1675 CCGGTTTCAGAGCCATCAGCTTTTGCATTTTTAAACATG 1713
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2. Sequence alignment for AK128728:

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US-10-537-767-4 (1-593) x AK128728 (1-3802)

Qy         17 LeuProIleLeuLeuLysGlyThrSerAspAspAspValProCysProGlyTyrLeuPhe 36

Db       1420 CTCCCGATTCTCCTGAAGGGGACGTCCGATGATGATGTCCCGTGTCCGGGCTACCTGTTT 1479

Qy         37 GluGluIleAlaLysIleSerHisCluSerProGlySerSerGlnCysLeuLeuGluTyr 56

Db       1480 GAAGAGATTGCTAAAATCTCCCACGAGTCTCCGGGCAGCAGCCAGTGCCTGCTGGAGTAC 1539
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Qy 57 LeuLeuSerArgLeuHisSerSerSerGlyHisGlyLysLeuLysValLeuLysIleLeu 76
Db 1540 CTCCTGACCCGCCTGCACAGCAGCTCCGGCCACGGGAAGCTCAAGGTGCTGAAGATCCTG 1599
Qy 77 LeuTyrLeuCysSerHisGlySerSerPhePheLeuLeuLeuLeuLysArgAsnSerAla 96
Db 1600 CTCTATCTGTGCAGCCACGGCTCCTCCTTCTTCCTGCTCATCCTCAAACGCAACTCTGCC 1659
Qy 97 PheIleGlnGluAlaAlaAlaPheAlaGlyProProAspProLeuHisGlyAsnSerLeu 116
Db 1660 TTCATCCAGGAAGCTGCAGCTTTGCAGGGCCCCCAGATCCTCTGCACGGCAACAGCTTG 1719
Qy 117 TyrGlnLysValArgAlaAlaAlaGlnAspLeuGlySerThrLeuPheSerAspThrVal 136
Db 1720 TACCAGAAGGTTCGCGCGGCCGCGCAGGACTTGGGGAGCACCCTGTTCTCGGACACCGTG 1779
Qy 137 LeuProLeuAlaProSerGlnProLeuGlyThrProProAlaThrGlyMetGlySerGln 156
Db 1780 TTGCCGCTGGCTCCCTCCCAGCCTCTGGGGACCCCGCCTGCCACAGGCATGGGCTCCCAG 1839
Qy 157 AlaArgProHisSerThrLeuGlnGlyPheGlyTyrSerLysGluHisGlyArgThrGly 176
Db 1840 GCCAGGCCGCACAGCACCCTCCAGGGTTTCGGCTACAGCAAGGAACACGGCCACACGGGC 1899
Qy 177 SerAlaGlyGluAlaPheLeuSerThrIleGlnLysAlaAlaGluValValAlaSerAla 196
Db 1900 TCGGCAGGCGAAGCCTTCCTCTCCACCATCCAGAAGGCCGCAGAGGTGGTGGCCAGCGCC 1959
Qy 197 MetArgProGlyProGluSerProSerThrArgArgLeuLeuProArgGlyAspThrTyr 216
Db 1960 ATGCGCCCCGGGCCCGAGAGTCCCAGTACCCGGAGGCTCCTGCCGCGGGGTGACACCTAC 2019
Qy 217 GlnProAlaMetMetProSerAlaSerHisGlyProProThrLeuGlyAsnLeuLeuPro 236
Db 2020 CAGCCTGCCATGATGCCTTCAGCCAGCCACGGTCCCCCAACCCTGGGGAACCTACTCCCC 2079
Qy 237 GlyAlaIleProGlyProArgAlaValArgHisGlnProGlyGlnAlaGlyGlyGlyTrp 256
Db 2080 GGGGCCATTCCAGGTCCCCGAGCTGTGAGGCATCAGCCTGGGCAGGCCGGAGGGGGCTGG 2139
Qy 257 AspGluLeuAspSerGlyProSerSerGlnAsnSerSerGlnAsnSerAspLeuSerArg 276
Db 2140 GATGAGCTGGACAGCGGCCCCAGCTCTCAGAATTCCTCCCAGAACAGCGACCTGAGCAGG 2199
Qy 277 ValSerAspSerGlySerHisSerGlySerAspSerHisSerGlyAlaSerArgGluPro 296
Db 2200 GTCTCGGACTCGGGCAGTCATTCGGCAGCGACAGCCATTCAGGGGCCAGCCGGGAGCCG 2259
Qy 297 GlyAspLeuAlaGluArgValGluValValAlaLeuSerAspCysGlnGlnGluLeuSer 316
Db 2260 GGTGACCTGGCAGAAAGGGTCGAGGTGGTGGCCCTGAGTGACTGTCAGCAGGAGTTGAGC 2319
Qy 317 LeuValArgThrValThrArgGlyProArgAlaPheLeuSerArgGluGluAlaGlnHis 336
Db 2320 TTGGTGAGGACTGTGACTCGGGGACCACGGCGCTTCCTGAGCCGGCGAGGAGGCACAGCAC 2379
Qy 337 PheIleLysAlaCysGlyLeuLeuAsnCysGluAlaValLeuGlnLeuLeuThrCysHis 356
Db 2380 TTCATCAAAGCGTGTGGACTGCTCAACTGTGAGGCCGTGCTGCAGCTGCTGACCTGCCAC 2439
Qy 357 LeuArgGlyThrSerGluCysThrGlnLeuArgAlaLeuCysAlaIleAlaSerLeuGly 376
Db 2440 CTGCGTGGGACCAGTGAATGCACGCAGCTGAGGGCGCTGTGTGCCATCGGCTCCCTGGGG 2499
Qy 377 SerSerAspLeuLeuProGlnGluHisIleLeuLeuArgThrArgProTrpLeuGlnGlu 396

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Db       2500 AGCAGCGACCTCCTCCCCCAGGAGCACATCCTCCTCCGCAACCGGCCGTGGCTGCAGGAG 2559

Qy        397 LeuSerMetGlySerProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPhe 416
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2560 CTCAGCATGGGCAGCCCGGGACCTGTGACCAACAAGGCACCAAGATCCTGAGGCACTTT 2619

Qy        417 GluAlaSerCysGlyGlnLeuSerProAlaArgGlyThrSerAlaGluProGlyProThr 436
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2620 GAGGCCTCCTGTGGGCAGCTGTCCCCTGCCCGGGGCACCTCAGCTGAGCCTGGCCCCACA 2679

Qy        437 AlaAlaLeuProGlyProSerAspLeuLeuThrAspAlaValProLeuProGlySerGln 456
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2680 GCCGCCCTCCCAGGCCCATCTGACCTGCTGACCGACGCTGTGCCTCTCCCTGGGAGCCAG 2739

Qy        457 ValPheLeuGlnProLeuSerSerThrProValSerSerArgSerProAlaProSerSer 476
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2740 GTCTTCCTGCAGCCTCTGAGTTCAACCCCGGTCTCGTCCCGGAGCCCTGCTCCCTCATCT 2799

Qy        477 GlyMetProSerSerProValProThrProProProAspAlaSerProIleProAlaPro 496
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2800 GGGATGCCGTCCAGCCCTGTGCCCACCCCACCCCCAGATGCCTCCCCCATTCCAGCCCCC 2859

Qy        497 GlyAspProSerGluAlaGluAlaArgLeuAlaGluSerArgArgTrpArgProGluArg 516
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2860 GGAGACCCCAGCGAGGCCGAGGCCAGACTGGCAGAAAGCAGGCGGTGGAGACCTGAACGG 2919

Qy        517 IleProGlyGlyThrAspSerProLysArgGlyProSerSerCysAlaTrpSerArgAsp 536
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2920 ATCCCGGGGGGCACGGACAGCCCAAAGAGAGGCCCCAGCAGCTGTGCGTGGAGCCGCGAC 2979

Qy        537 SerLeuPheAlaGlyMetGluLeuValAlaCysProArgLeuValGlyAlaGlyAlaAla 556
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2980 TCCTTGTTTGCTGGCATGGAGCTGGTGGCCTGTCCCGCCTGGTGGGGGCTGGGGCTGCT 3039

Qy        557 AlaGlyGluSerCysProAspAlaProArgAlaProGlnThrSerSerGlnArgThrAla 576
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       3040 GCGGGAGAGTCCTGTCCTGATGCTCCCCGCGCCCCCCAAACATCGTCCCAGAGGACAGCA 3099

Qy        577 AlaLysGluProProGlySerGluProSerAlaPheAlaPheLeuAsnAla 593
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Db       3100 GCCAAAGAGCCTCCTGGCTCAGAGCCGTCAGCTTTCGCGTTCCTGAACGCC 3150
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3. Sequence alignment for AX714043:

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US-10-537-767-4 (1-593) x AX714043 (1-2249)

Qy          1 MetAlaAlaAlaProProLeuArgAspArgLeuSerPheLeuHisArgLeuProIleLeu 20
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         23 ATGGCTGCCGCGCCGCCGCTACGGGACCGCCTGAGCTTTCTACACCGGCTCCCGATTCTC 82

Qy         21 LeuLysGlyThrSerAspAspAspValProCysProGlyTyrLeuPheGluGluIleAla 40
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         83 CTGAAGGGGACGTCCGATGATGATGTCCCGTGTCCGGGCTACCTGTTTGAAGAGATTGCT 142

Qy         41 LysIleSerHisGluSerProGlySerSerGlnCysLeuLeuGluTyrLeuLeuSerArg 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        143 AAAATCTCCCACGAGTCTCCGGGCAGCAGCCAGTGCCTGCTGGAGTACCTCCTGAGCCGC 202

Qy         61 LeuHisSerSerSerGlyHisGlyLysLeuLysValLeuLysIleLeuLeuTyrLeuCys 80
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        203 CTGCACAGCAGCTCCGGCCACGGGAAGCTCAAGGTGCTGAAGATCCTGCTCTATCTGTGC 262
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Qy         81 SerHisGlySerSerPhePheLeuLeuIleLeuLysArgAsnSerAlaPheIleGlnGlu 100
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        263 AGCCACGGCTCCTCCTTCTTCCTGCTCATCCTCAAACGCAACTCTGCCTTCATCCAGGAA 322

Qy        101 AlaAlaAlaPheAlaGlyProProAspProLeuHisGlyAsnSerLeuTyrGlnLysVal 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        323 GCTGCAGCTTTTGCAGGGCCCCCAGATCCTCTGCACGGGAACAGCTTCGTACCAGAAGGTT 382

Qy        121 ArgAlaAlaAlaGlnAspLeuGlySerThrLeuPheSerAspThrValLeuProLeuAla 140
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        383 CGCGCGGCCGCGCAGGACTTGGGGAGCACCCTGTTCTCGGACACCGTGTTGCCGCTGGCT 442

Qy        141 ProSerGlnProLeuGlyThrProProAlaThrGlyMetGlySerGlnAlaArgProHis 160
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        443 CCCTCCCAGCCTCTGGGGACCCCGCCTGCCACAGGCATGGGCTCCCAGGCCAGGCCGCAC 502

Qy        161 SerThrLeuGlnGlyPheGlyTyrSerLysGluHisGlyArgThrGlySerAlaGlyGlu 180
              ||||||||||||||||||||||||||||||||||||||||
Db        503 AGCACCCTCCAGGGTTTCGGCTACAGCAAGGAACACGGCCGCACG---------------- 547

Qy        181 AlaPheLeuSerThrIleGlnLysAlaAlaGluValValAlaSerAlaMetArgProGly 200

Db        547 ------------------------------------------------------------ 547

Qy        201 ProGluSerProSerThrArgArgLeuLeuProArgGlyAspThrTyrGlnProAlaMet 220

Db        547 ------------------------------------------------------------ 547

Qy        221 MetProSerAlaSerHisGlyProProThrLeuGlyAsnLeuLeuProGlyAlaIlePro 240

Db        547 ------------------------------------------------------------ 547

Qy        241 GlyProArgAlaValArgHisGlnProGlyGlnAlaGlyGlyGlyTrpAspGluLeuAsp 260
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        548 ---------GCTGTGAGGCATCAGCCTGGGCAGGCCGGAGGGGGCTGGGATGAGCTGGAC 598

Qy        261 SerGlyProSerSerGlnAsnSerSerGlnAsnSerAspLeuSerArgValSerAspSer 280
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        599 AGCGGCCCCAGCTCTCAGAATTCCTCCCAGAACAGTGACCTGAGCAGGGTCTCGGACTCG 658

Qy        281 GlySerHisSerGlySerAspSerHisSerGlyAlaSerArgGluProGlyAspLeuAla 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        659 GGCAGTCATTCCGGCAGCGACAGCCATTCAGGGGCCAGCCGGGAGCCGGGTGACCTGGCA 718

Qy        301 GluArgValGluValValAlaLeuSerAspCysGlnGlnGluLeuSerLeuValArgThr 320
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        719 GAAAGGGTCGAGGTGGTGGCCCTGAGTGACTGTCAGCAGGAGTTGAGCTTGGTGAGGACT 778

Qy        321 ValThrArgGlyProArgAlaPheLeuSerArgGluGluAlaGlnHisPheIleLysAla 340
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        779 GTGACTCGGGGACCACGCGCCTTCCTGAGCCGCGAGGAGGCACAGCACTTCATCAAAGCG 838

Qy        341 CysGlyLeuLeuAsnCysGluAlaValLeuGlnLeuLeuThrCysHisLeuArgGlyThr 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        839 TGTGGACTGCTCAACTGTGAGGCCGTGCTGCAGCTGCTGACCTGCCACCTGCGTGGGACC 898

Qy        361 SerGluCysThrGlnLeuArgAlaLeuCysAlaIleAlaSerLeuGlySerSerAspLeu 380
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        899 AGTGAATGCACGCAGCTGAGGGCGCTGTGTGCCATCGCCTCCCTGGGGAGCAGCGACCTC 958

Qy        381 LeuProGlnGluHisIleLeuLeuArgThrArgProTrpLeuGlnGluLeuSerMetGly 400
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        959 CTCCCCCAGGAGCACATCCTCCTCCGCACCCGGCCGTGGCTGCAGGAGCTCAGCATGGGC 1018

Qy        401 SerProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPheGluAlaSerCys 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1019 AGCCCGGGACCTGTGACCAACAAGGCCACCAAGATCCTGAGGCACTTTGAGGCCTCCTGT 1078
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Qy       421 GlyGlnLeuSerProAlaArgGlyThrSerAlaGluProGlyProThrAlaAlaLeuPro 440
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1079 GGGCAGCTGTCCCCTGCCCGGGGCACCTCAGCTGAGCCTGGCCCCACAGCCGCCCTCCCA 1138

Qy       441 GlyProSerAspLeuLeuThrAspAlaValProLeuProGlySerGlnValPheLeuGln 460
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1139 GGCCCATCTGACCTGCTGACCGACGCTGTGCCTCTCCCTGGGAGCCAGGTCTTCTCCTGCAG 1198

Qy       461 ProLeuSerSerThrProValSerSerArgSerProAlaProSerSerGlyMetProSer 480
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1199 CCTCTGAGTTCAACCCCGGTCTCGTCCCGGAGCCCTGCTCCCTCATCTGGCATGCCGTCC 1258

Qy       481 SerProValProThrProProProAspAlaSerProIleProAlaProGlyAspProSer 500
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1259 AGCCCTGTGCCCACCCCACCCCCAGATGCCTCCCCCATTCCAGCCCCCGGAGACCCCAGC 1318

Qy       501 GluAlaGluAlaArgLeuAlaGluSerArgArgTrpArgProGluArgIleProGlyGly 520
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1319 GAGGCCGAGGCCAGACTGGCAGAAAGCAGGCGGTGGAGACCTGAACGGATCCCAGGGGGC 1378

Qy       521 ThrAspSerProLysArgGlyProSerSerCysAlaTrpSerArgAspSerLeuPheAla 540
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1379 ACGGACAGCCCAAAGAGAGGCCCCAGCAGCTGTGCGTGGAGCCGCGACTCCTTGTTTGCT 1438

Qy       541 GlyMetGluLeuValAlaCysProArgLeuValGlyAlaGlyAlaAlaAlaGlyGluSer 560
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1439 GGCATGGAGCTGGTGGCCTGTCCCCGCCTGGTGGGGGCTGGGGCTGCTGCGGGAGAGTCC 1498

Qy       561 CysProAspAlaProArgAlaProGlnThrSerSerGlnArgThrAlaAlaLysGluPro 580
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1499 TGTCCTGATGCTCCCCGCGCCCCCCAAACATCGTCCCAGAGGACAGCAGCCAAAGAGCCT 1558

Qy       581 ProGlySerGluProSerAlaPheAlaPheLeuAsnAla 593
            |||||||||||||||||||||||||||||||||||||||
Db      1559 CCTGGCTCAGAGCCGTCAGCTTTCGCGTTCCTGAACGCC 1597
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Claims 1-5 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jae W. Lee whose telephone number is 571-272-9949. The examiner can normally be reached between 9:00 to 5:00 on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAE W LEE/

Examiner, Art Unit 1656

/Delia M. Ramirez/

Delia M. Ramirez, Ph.D.
Primary Examiner, Art Unit 1652